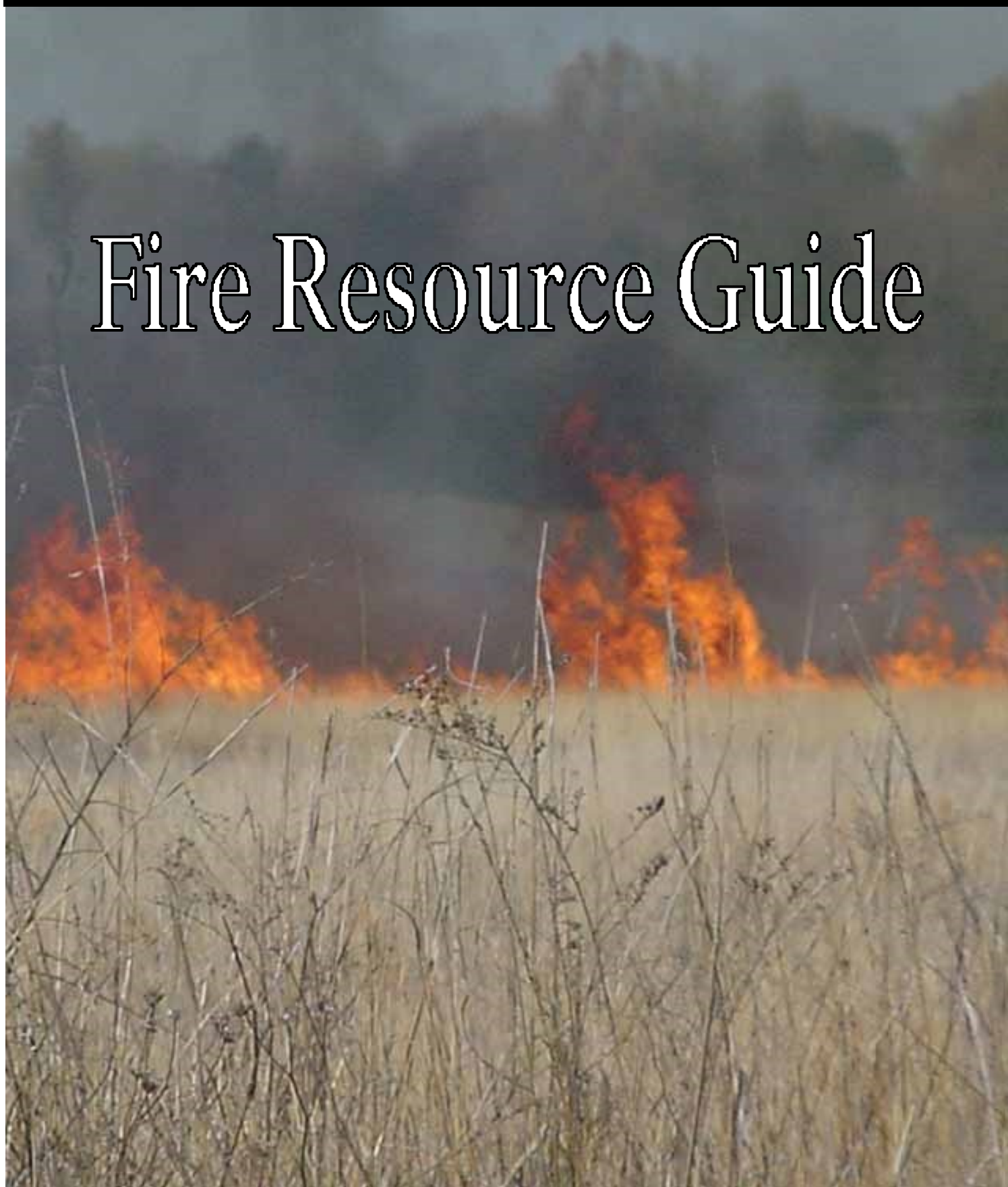




# Fire Resource Guide



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# Overview of the Natchez Trace Parkway

## Natchez Trace Parkway Information

### What is the Natchez Trace Parkway?

The Natchez Trace Parkway is a National Park that is a 444 mile roadway, with an average width of only 800 feet, that stretches from Natchez, MS to Nashville, TN. The Parkway crosses through Mississippi, Alabama, and Tennessee as well as multiple ecosystems, 8 watersheds, and 12 physiographic regions. This National Park keeps 39,000 of its 52,000 acres in natural condition so that visitors can enjoy the historical and panoramic views.

### What some ecoregions that occur along the Natchez Trace Parkway?

- Nashville Basin
- Highland Rim
- Fall Line Hills
- Blackland Prairie/Margins
- Northern Hilly Gulf Coastal Plain
- Southern Rolling Hills
- Mississippi Valley Bluff Hills and Loess Plains

### How many species are confirmed to be found along the Natchez Trace Parkway?

Flora:

- 2,200 plant species

Fauna:

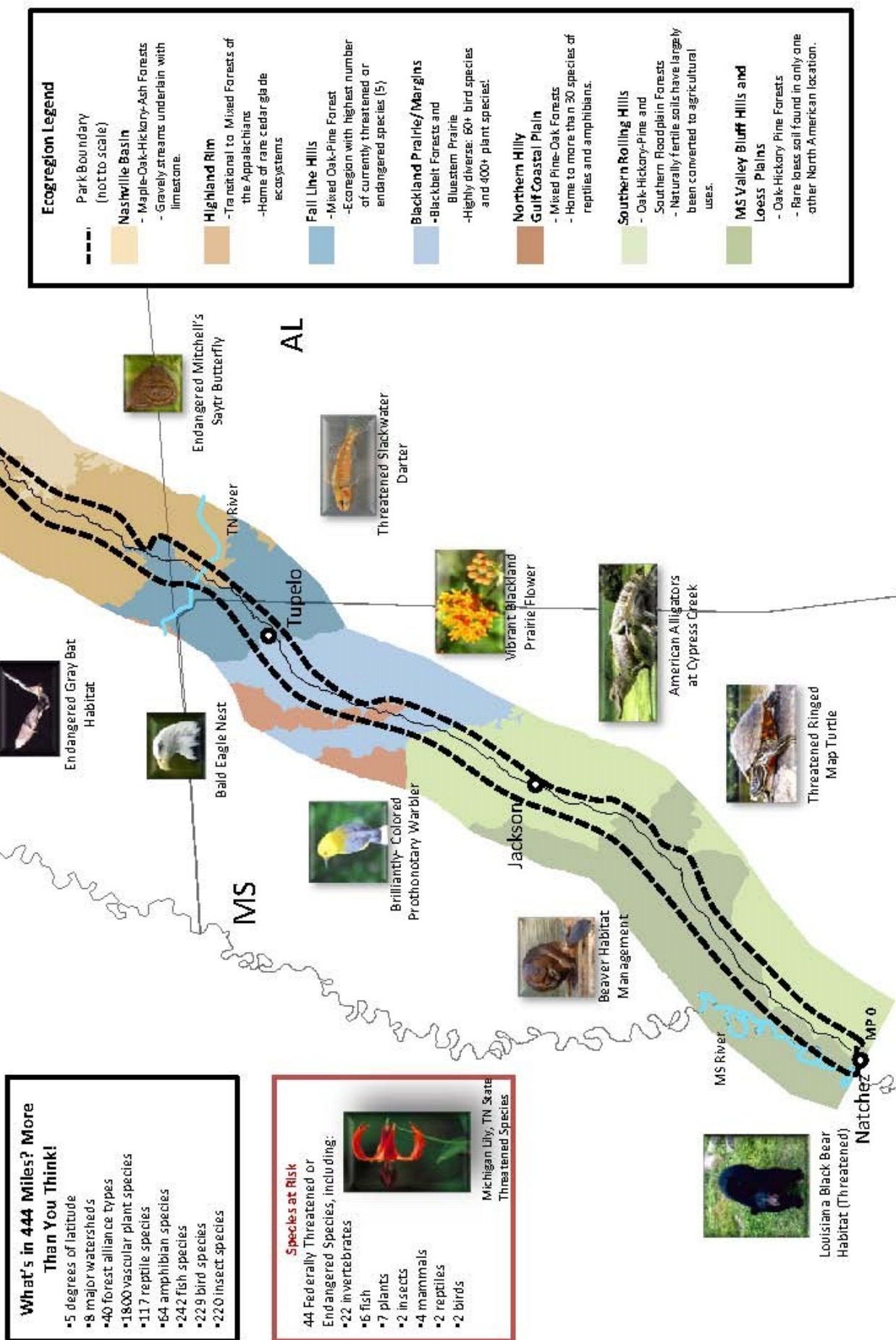
- 33 mammals
- 134 birds
- 24 amphibians
- 47 reptiles
- 242 fish (more than any other national park!)

### What are some invasive species along the Natchez Trace Parkway that are managed in part by fire?

- Chinese privet
- Kudzu
- Japanese honeysuckle
- Johnsongrass

# Overview of the Natchez Trace Parkway

## Ecoregions and Natural Resources of the Natchez Trace Parkway





# Overview of the Natchez Trace Parkway

## Species Along the Natchez Trace Parkway



White-tailed deer



American white pelican



American alligator



Gray rat snake



Spotted  
salamander



Red fox



Bald Eagle (FWS Photo)

## Threatened and Endangered Species Along the Natchez Trace Parkway



Indiana bat (FWS Photo)



Louisiana black bear (FWS Photo)



Leafy prairie-clover  
(FWS Photo)



Shiny pigtoe mussel (FWS Photo)



Tennessee purple coneflower



Slackwater darter



Ringed sawback turtle  
(FWS Photo)



# Overview of the Natchez Trace Parkway

## Invasive Species Along the Natchez Trace Parkway



Nepalese browntop



Japanese honeysuckle



Chinese privet



Clover



Kudzu



Mimosa

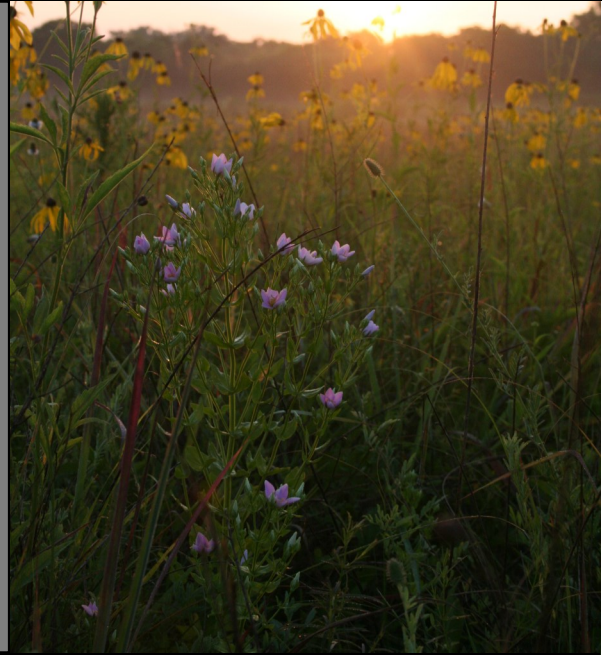


# Prescribed Fire

## Natural Fire-Dependent Cycle



Fires occur naturally in order to optimize biodiversity.



Historically, grasslands, southern pine, and oak-hickory forests



There are also species, like the red-cockaded woodpecker (below left) and Bachman's sparrow (below right), that are fire-dependent and require fire cycles to survive in a specific location.



FWS Photo



Photo taken from  
[birds.cornell.edu](http://birds.cornell.edu)



# Prescribed Fire

## Benefits of Burning

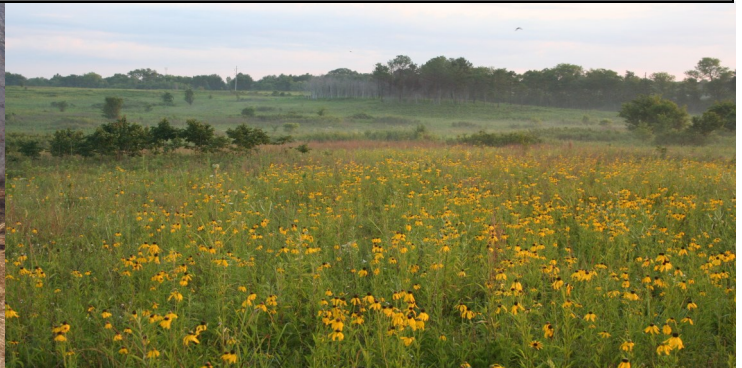
Opens up forest floor for new growth by reducing buildup of dead, woody material.



Decreases risk of catastrophic wildfire by removing fuel and reducing fire intensity.



Restores natural role of fire in a healthy ecosystem.  
Provides habitat and forage for animals.



Perpetuates fire dependent species, while reducing exotic vegetation.



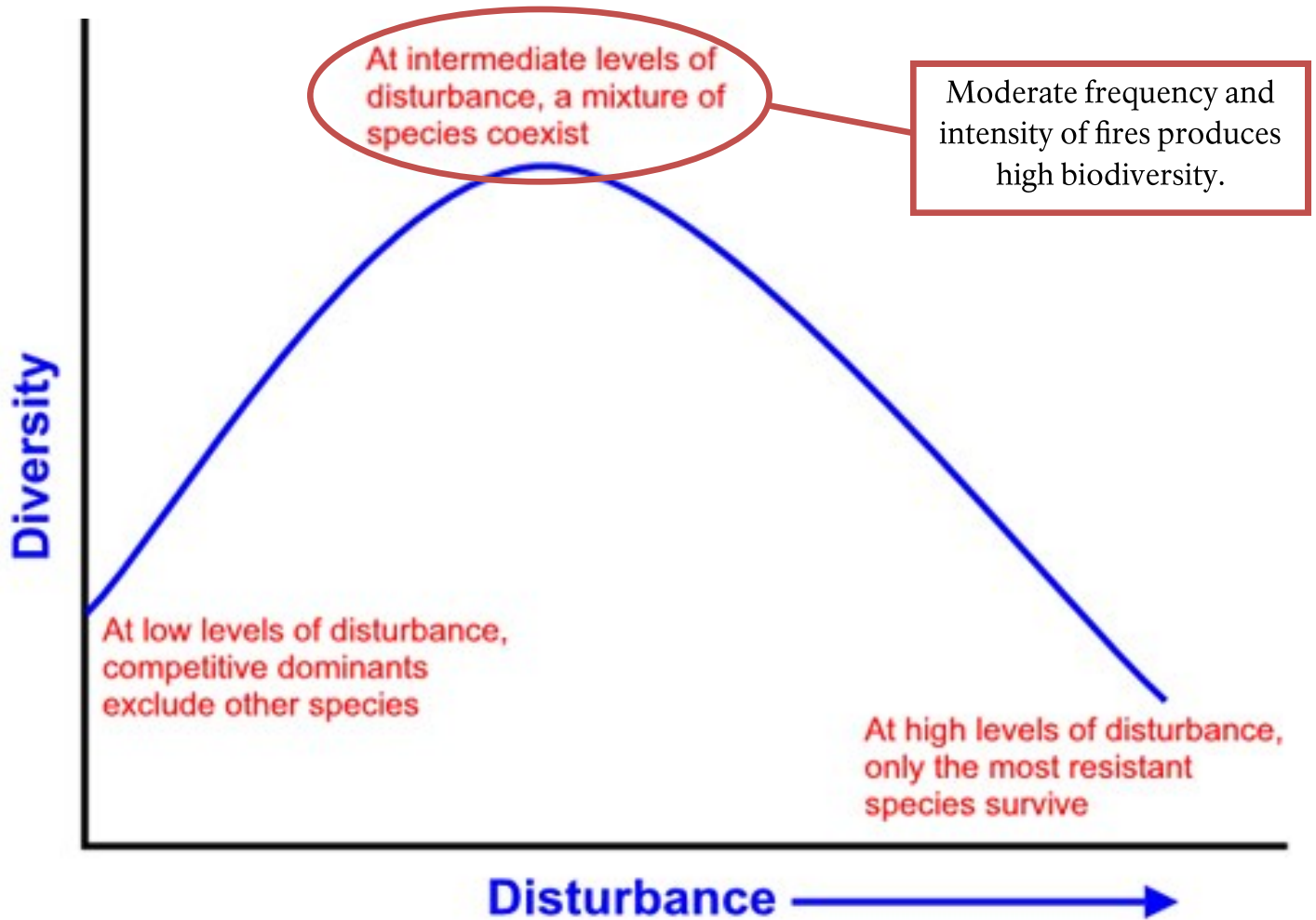
Photo taken from [sites.naturalsciences.org](https://sites.naturalsciences.org)





# Prescribed Fire

## Intermediate Disturbance Hypothesis



Taken from [learnline.edu.au](http://learnline.edu.au)

Frequency and intensity of a disturbance, like fire, affect biodiversity. Moderate levels of disturbance support high species diversity.

Locations burned every few years benefit from the disturbance fire creates.

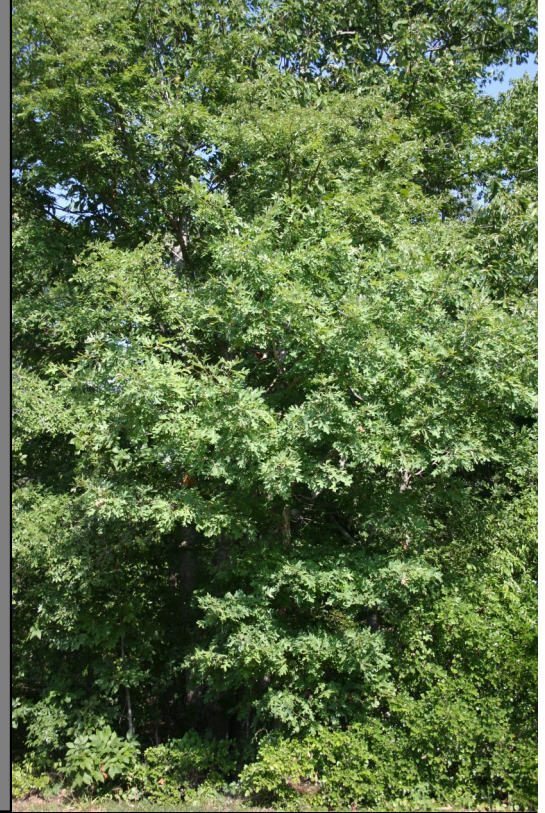
Prescribed burns of longleaf pine systems encourage new growth in the open space and nutrient rich soils, while also eliminating hardwood species such as oak or hickory which can outcompete the pines.

# Prescribed Fire

## Burn Cycle of Pine Systems



Burn pine forest systems (left) to reduce hardwoods, like white oak (right), which can outcompete pines.



Allow new growth like the longleaf pine (below left) and maintain mature pines so that species like the red-cockaded woodpecker (bottom right) can survive.

If fire was not used in a pine system, then hickories and oaks would become dominant and valuable red-cockaded woodpecker habitat would be lost.

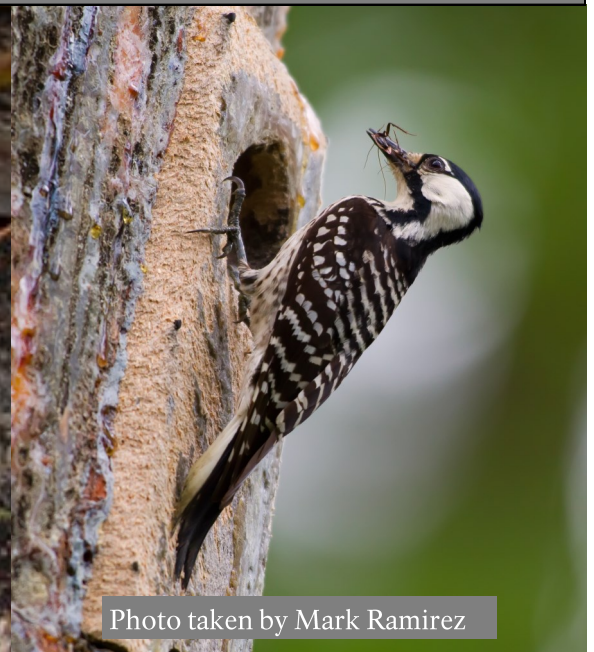


Photo taken by Mark Ramirez



## Real-time Fire Cycle



FWS Photo

These photos depict the fire cycle that occurs at the Florida Panther National Wildlife Refuge. The photos were taken at the same site and show the land with overgrowth (top), just after a prescribed burn (middle), and regrowth (bottom).

## Prescribed Fire



# Prescribed Fire

## Goals of Fire at Natchez Trace Parkway

Reduce red cedars (below left) and pole-sized trees to open understory .



Increase native species (below left) while reducing exotic plants, like Japanese honeysuckle (below right).

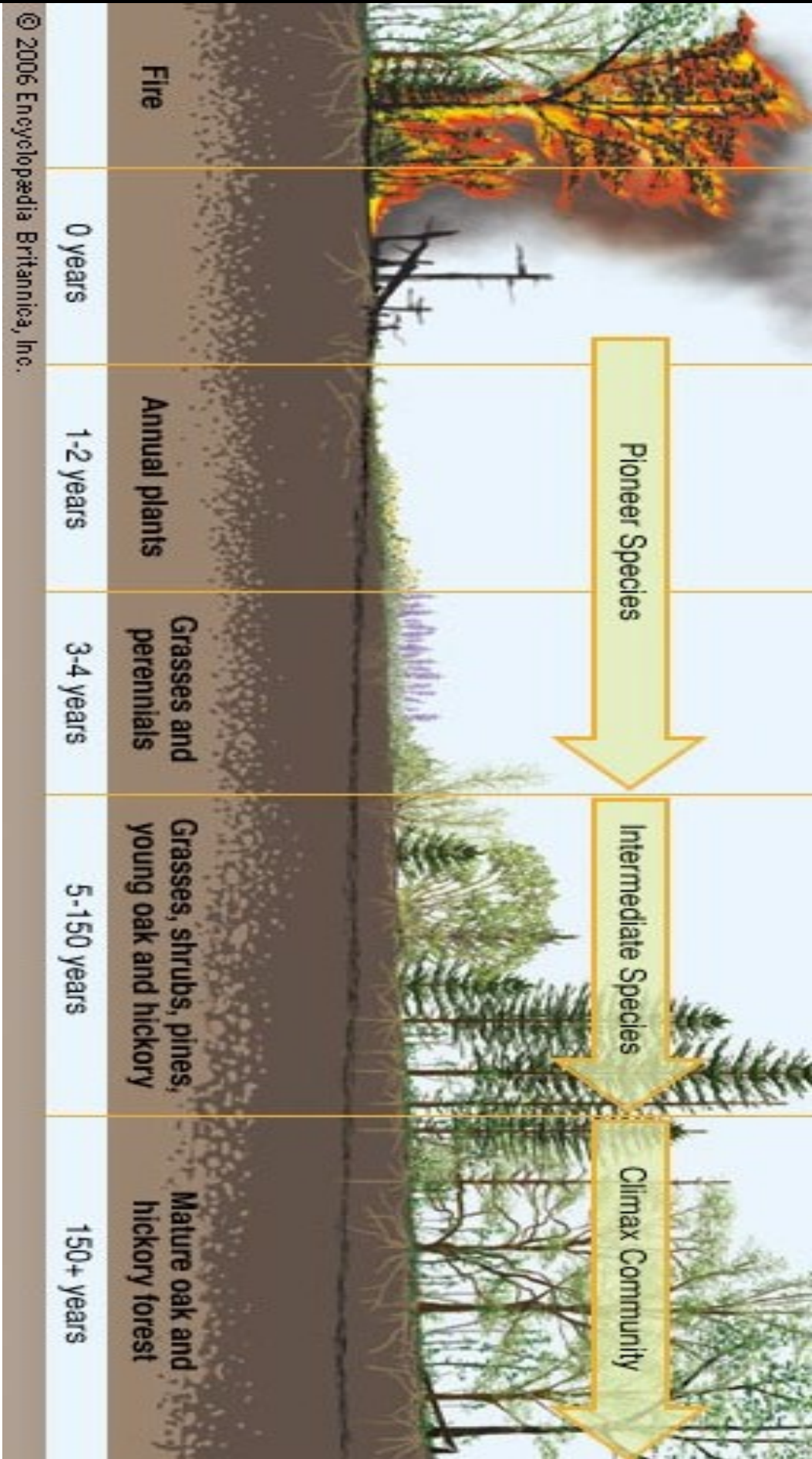


Reduce fuel to decrease wildfire frequency and intensity.





Stages of Succession





# Habitat

What is habitat?



Food



Water



Shelter



Space





# Habitat

## How Does Fire Help Create Habitat?

New flowers provide a food source for insects. Insects ensure the survival of the plant species they pollinate, and are also a food source for animal species.



Removes understory and debris, which allows species space to find food, water, mates, and shelter.



Fire stops the succession of pine forests to oak and hickory forests. For animals that require pine forest to survive, like the Bachman's sparrow (bottom right), fire provides shelter by maintaining a pine dominated forest.



# Glossary

**annual plants**– plants that grow from seed, flower, set seed, and die, thus completing their life cycle in a single year

**biodiversity**- the number of different species of plants and animals in a specific location

**dominant**– a species in a community that has the greatest number, coverage, or size

**ecoregion**- large areas of similar climate where ecosystems recur in predictable patterns

**ecosystem**– a biotic community and its interaction with the abiotic environment

**endangered**– the total population of the species is declining to relatively low levels throughout its range, such that, if the trend continues, will result in extinction

**exotic (also see invasive)**– a species introduced to a geographical area where it does not occur naturally

**forage**– to search for food

**fuel**– wood or grasses that allow fires to start and spread

**habitat**– the sum of the environmental conditions where an organism, population, or community lives; the environment in which the life needs of an



# Glossary

**intermediate disturbance hypothesis**– proposed by Joseph Connell in 1978; an ecosystem maintains its highest species diversity under conditions of moderate disturbance

**invasive (also see exotic)**- a species introduced to a geographical area where it does not occur naturally

**native**– a naturally occurring species of that community

**perennial plants**– plants that survive and grow year after year

**pole (pole-sized)**- a tree that is 5-11 inches diameter at breast height; it is a tree between the size of a sapling and a mature tree

**prescribed burn**– a fire that is set and allowed to spread on purpose but is controlled and monitored by firefighters in order to manage an environment

**shrub**– a woody plant that lacks a single trunk

**species diversity**– the number of species in a community or region

**succession**– the gradual, or sometimes rapid, change of in species that occupy a given area

**threatened**– a species whose population levels are low enough to cause concern but are not low enough to be considered endangered

**understory**– plants and trees that grow beneath the forest canopy

**watershed**– the total land area that drains directly or indirectly into a particular stream or river